
Featured Article: Psychosocial and Family Functioning Among Latino Youth With Spina Bifida

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Abstract

Objective This study examined differences in psychosocial and family functioning between Latino and non-Latino Caucasian youth with spina bifida (SB), and examined family functioning as a predictor of youth psychosocial functioning as moderated by ethnicity. **Methods** Participants were part of a larger, longitudinal study (Devine, Holbein, Psihogios, Amaro, & Holmbeck, 2012) and included 74 non-Latino Caucasian youth with SB and 39 Latino youth with SB (*M* age = 11.53, 52.2% female). Data were collected at Time 1 and 2 years later, and included questionnaire and observational data of psychosocial and family functioning. **Results** Latino youth demonstrated fewer externalizing symptoms, less family conflict, but also less social competence. Family conflict was associated with psychosocial functioning in Latino youth, while family cohesion, conflict, and stress were associated with psychosocial functioning in non-Latino Caucasian youth. **Conclusions** Psychosocial and family functioning, and their relationship over time, may be different in Latino versus Caucasian youth with SB.

Key words: family functioning; psychosocial functioning; race/ethnicity; spina bifida.

Spina bifida (SB) is a relatively common congenital birth defect (occurs in approximately 3 of every 10,000 live births; National Birth Defects Prevention Network, 2010) that is caused by a failed closure of one or more vertebrae during the early weeks of gestation. SB can result in a number of physical and neurological complications, including paraplegia, bladder and bowel dysfunction, orthopedic conditions, hydrocephalus, and neurocognitive impairments such as deficits in attention and executive functioning (Copp et al., 2015). Along with numerous condition-related challenges, youth with SB are likely to face significant psychosocial challenges including internalizing symptoms and social difficulties (Holmbeck et al., 2010).

The prevalence rates of SB are the highest for Latinos/Hispanics compared with all other racial/ethnic groups. Specifically, from 1999 to 2005, prevalence rates for SB per 10,000 live births were 4.2 for Latina

mothers, 3.2 for non-Latina Caucasian mothers, and 2.6 for non-Latina African-American mothers (Boulet et al., 2008). However, research on Latino youth with SB is scarce, especially concerning youth psychosocial functioning and family functioning. Exceptions include a study that found that Latino youth with SB exhibit higher depressive symptoms than their Latino typically developing peers (Nicholls et al., 2015) and that, for young people with SB, being Latino or not speaking English at home had adverse effects on participation in social activities and work (Liptak, Kennedy, & Dosa, 2010). Given that previous research has shown that both youth with SB (Holmbeck et al., 2010) and typically developing Latino youth (CDC, 2006) are at risk for less optimal psychosocial functioning, Latino youth with SB may be especially at risk. In addition, while there is limited research on how family functioning impacts psychosocial functioning among

all youth with SB, research on typically developing Latino youth suggests that family functioning is an important predictor of psychosocial functioning (Cupito, Stein, Gonzalez, & Supple, 2016). Thus, the current study sought to address limitations in the current literature by examining psychosocial and family functioning among Latino youth with SB.

Psychosocial Functioning in Youth With SB

Several studies have found youth with SB to have high rates of internalizing symptoms, particularly depressive symptoms, compared with typically developing youth, and to also be at risk for externalizing symptoms (Holmbeck et al., 2010; Kelly et al., 2012; Piquart & Shen, 2011). Youth with SB are also at risk for experiencing social difficulties (Holmbeck et al., 2010). Specifically, compared with their typically developing peers, youth with SB are less socially competent, are less socially accepted, and have friendships that are of poorer quality (Devine, Holmbeck, Gayes, & Purnell, 2012; Holmbeck et al., 2003; Landry, Taylor, Swank, Barnes, & Juranek, 2013; Shields, Taylor, & Dodd, 2008). Understanding more about social adjustment in youth with SB and what factors may impact it is important because adaptive social adjustment has been found to be associated with better psychological adjustment (Lennon, Klages, Amaro, Murray, & Holmbeck, 2015).

Psychosocial Functioning in Typically Developing Latino Youth

Although little research has examined Latino youth with SB, an extensive body of literature exists on the psychosocial functioning of typically developing Latino youth. The majority of existing research has shown that typically developing Latino youth are disproportionately at risk for poor psychological adjustment as compared with non-Latino Caucasian peers, including internalizing disorders (McLaughlin, Hilt, Nolen-Hoeksema, 2007) and externalizing problems (CDC, 2006). Studies investigating the social adjustment of typically developing Latino youth have found Latino students to be more likely to be friendless and less likely to form friendships in school than their Caucasian peers (Vaquera, 2009).

Family Functioning in Families of Youth With SB

The existing literature supports a *resilience-disruption* view of family functioning for families of youth with SB, suggesting that, while the presence of a child with SB may disrupt normative family functioning in certain ways, these families are able to adapt and demonstrate considerable resilience (Costigan, Floyd, Harter, McClintock, 1997; Lennon, Murray, Bechtel, & Holmbeck, 2015). Indeed, families of preadolescents

with SB have been found to be less cohesive than families of typically developing children (Lennon, Murray et al., 2015), especially when families are from lower socioeconomic status (SES) backgrounds (Holmbeck et al., 2002). However, these families did not demonstrate normative increases in family conflict during early adolescence (Coakley, Holmbeck, Friedman, Greenly, & Thill, 2002). Additionally, changes in family cohesion and conflict over time were less dramatic than what is seen in families of typically developing children and adolescents (Jandasek, Holmbeck, DeLucia, Zebracki, & Friedman, 2009).

Studies examining the impact of family functioning on psychosocial functioning in youth with SB are limited. One study found that higher levels of positive experiences within the family context were associated with fewer depressive symptoms (Essner & Holmbeck, 2010) and another study found that satisfaction with family functioning had small effects on young adults' depression and anxiety symptoms (Bellin et al., 2010).

Family Functioning in Latino Families of Typically Developing Youth

Latino parents have been described as socializing their children according to cultural values and styles of interaction that differ from those of the dominant U.S. culture (Cauce & Domenech-Rodriguez, 2002). The related values of familism and family cohesion have been identified as cultural values most central to Latino families. Familism reflects the *valuing* of one's family, while family cohesion reflects the *emotional bond* within one's family (Marsiglia, Parsai, Kulis, & Southwest Interdisciplinary Research Center, 2009). Within Latino families, familism has been shown to promote family cohesion while discouraging family conflict (Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson, & Soto, 2012). In addition, Latino youth endorse stronger positive attitudes toward family support and respect compared with non-Latino Caucasian youth (Fulgini, Tseng, & Lam, 1999). However, current evidence suggests that Latino families are at risk for experiencing a variety of stressors, such as those related to poverty and discrimination, and this stress may contribute to and exacerbate family conflict and family stress (Romero & Roberts, 2003). Overall, as in the case of families of youth with SB, the existing literature supports the previously noted *resilience-disruption* view of family functioning in Latino families, in that, while Latino families may be at risk for experiencing a variety of stressors, they may also hold cultural values that promote positive adjustment.

Research investigating the impact of family functioning on psychosocial functioning in typically developing Latino youth has found family conflict to be a risk factor for depressive symptoms (Lorenzo-Blanco et al., 2012) and family cohesion and familism to be protective against both internalizing symptoms and externalizing

problems (Cupito et al., 2016; German, Gonzales, & Dumka, 2009). Taken together, this research suggests that family functioning may be an important predictor of psychosocial functioning in Latino youth.

Current Study

The current study sought to expand the limited knowledge of Latino youth with SB by building on a resilience-disruption framework and identifying ways in which Latino youth with SB and their families may demonstrate both areas of resilience and disruption. Objective 1 was to compare psychosocial functioning and family functioning between Latino and non-Latino Caucasian youth with SB. It was hypothesized that Latino youth with SB would demonstrate poorer psychosocial functioning (i.e., higher levels of internalizing and externalizing symptoms, lower levels of social competence, peer acceptance, and friendship quality) than non-Latino Caucasian youth with SB but that Latino families of youth with SB would demonstrate higher levels of family cohesion and stress and lower levels of family conflict than non-Latino Caucasian families. Objective 2 was to identify relations between family functioning and psychosocial functioning in youth with SB, and examine how these relations differ based on ethnicity (see Figure 1). It was hypothesized that for both Latino and non-Latino Caucasian families of youth with SB, poorer family functioning would predict poorer youth psychosocial functioning, but that ethnicity (Latino vs. non-Latino Caucasian) would moderate this relationship such that family functioning would be a stronger predictor of psychosocial functioning for Latino youth with SB as compared with non-Latino Caucasian youth with SB.

Methods

Participants

Participants were recruited from an ongoing, longitudinal study examining psychological adjustment,

neuropsychological functioning, family relationships, and peer relationships among youth with SB (see Devine, Holbein, Psihogios, Amaro, & Holmbeck, 2012). Families of youth with SB were recruited from four hospitals and a statewide SB association in the Midwest. Two of the four hospitals were general children’s hospitals, one was a pediatric subspecialty/rehabilitation hospital, and one was a general medical hospital with a SB clinic. All hospitals were located in urban settings that serve diverse populations who live in the surrounding urban, suburban, and rural areas; thus, recruited participants are believed to be representative of the general SB population in the United States. Active (i.e., direct contact with potential participants in-person during hospital clinic visits or over the phone) and passive recruitment strategies (i.e., flyers placed in hospital clinics) were used. Inclusion criteria for youth with SB were (a) a diagnosis of SB (types included myelomeningocele, lipomeningocele, myelocystocele), (b) age 8–15 years at Time 1, (c) ability to speak and read English or Spanish, (d) involvement of at least one primary custodial caregiver, and (e) residence within 300 miles of the laboratory (to allow for home visits to collect data). Latino families were intentionally oversampled to better study this subpopulation of youth with SB, given their prevalence. Strategies for recruiting Latino families included using Spanish-speaking research assistants for in-person and telephone recruitment, and placing flyers written in Spanish in hospital clinics.

A total of 246 families were approached during recruitment, of which 163 agreed to participate. However, of those 163 families, 21 families could not be contacted or later declined, and 2 families did not meet inclusion criteria. The final sample of participants included 140 families of children with SB (53.6% female; *M* age = 11.53). Of these 140 children, 52.9% were Caucasian, 27.9% were Latino, 13.6% were African American, and 5.6% were of another race/ethnicity. The families who declined participation did not differ from those who agreed to

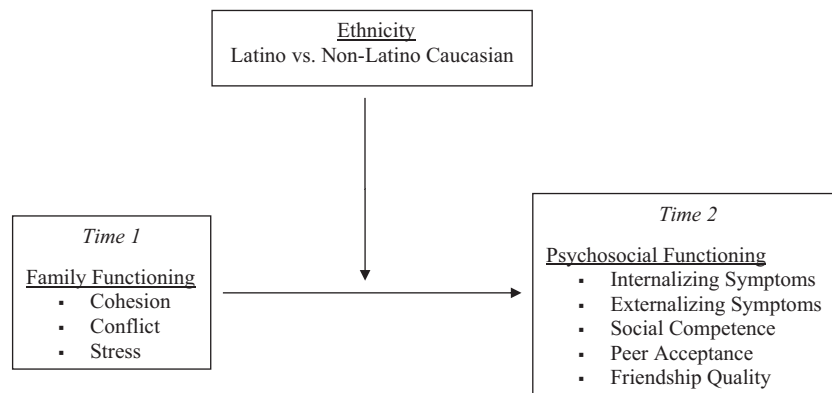


Figure 1. Ethnicity as a moderator of the association between family functioning at Time 1 and psychosocial functioning at Time 2 (2 years later) among youth with spina bifida.

participate with respect to type of SB (myelomeningocele vs. other), shunt status, or occurrence of shunt infections (p 's > .05). The current study was based on data collected at the first (Time 1; ages 8–15 years) and second (Time 2; ages 10–17 years) time points, which were 2 years apart.

Of the 140 families who participated at Time 1, analyses were limited to youth who reported Latino ($n = 39$) or non-Latino Caucasian ($n = 74$) ethnicity (total $N = 113$). Youth demographic and SB information is presented in Table I. Within the Latino sample, 39 (100%) youth were born in the United States. Twenty-three (59%) mothers were born outside of the United States, 9 (23.1%) were born in the United States, and 7 (17.9%) did not report their country of birth. Twenty (51.3%) fathers were born outside of the United States, 6 (15.4%) were born in the United States (15.4%), and 13 (33.3%) did not report their country of birth. While all 39 (100%) Latino youth reported English to be their primary language, 28 (71.8%) families reported that the primary language spoken at home was Spanish.

At Time 2, 26 of the 39 (67%) Latino families participated and 63 of the 74 (85%) non-Latino Caucasian families participated (total $N = 89$ at Time 2). Among Latino youth, there were no significant differences between those who did and did not participate at Time 2 with respect to age, gender, type of SB, lesion level, shunt status, IQ, SES, or language (p 's > .05). Similarly, among non-Latino Caucasian youth, there were no significant differences between those who did and did not participate at Time 2 with respect to age, gender, type of SB, lesion level, shunt status, IQ, and SES (p 's > .05).

Procedure

The current study was approved by university and hospital institutional review boards. Trained research assistants collected data during two separate 2-hr home visits at Time 1 and one 3-hr home visit at Time 2. For home visits with families who primarily spoke Spanish in the home, at least one research assistant was bilingual. Parental consent and child assent were obtained at the participant's home. Parents signed release forms to allow for data collection from medical charts, health professionals, and teachers. The current study used youth-, parent-, and teacher-reported questionnaire data and observational data of family interaction tasks. Parents completed questionnaires separately. Questionnaires that were only available in English were adapted for Spanish speakers using forward and back translation by a translation team from the University of Houston (the same team as in Swartwout, Garnaat, Myszyka, Fletcher, & Dennis, 2010). Families received \$150, a t-shirt, a water bottle, and a pen as compensation for participation at each time point.

Measures

All measures were administered at Time 1 and Time 2; however, the current study only includes Time 2 data for psychosocial functioning variables (Objective 2).

Demographic and Condition-Related Information

Parents reported on youth and family demographic information via questionnaires. Parents reported on child age, gender, and race/ethnicity. Parents also reported on their gender, race/ethnicity, education,

Table I. Youth Demographic and Spina Bifida Information at Time 1, by Ethnicity

Characteristic	Total M (SD) or N (%)	Non-Latino Caucasian M (SD) or N (%)	Latino M (SD) or N (%)	Non-Latino Caucasian vs. Latino
Participants	113 (100%)	74 (65.5%)	39 (33.5%)	
Age	11.53 (2.41)	11.31 (2.34)	11.95 (2.53)	$t(111) = -1.34^{ns}$
Gender: male	54 (47.8%)	35 (47.3%)	19 (48.7%)	$\chi^2(1) = 0.02^{ns}$
Spina bifida type				
Myelomeningocele	98 (86.7%)	64 (86.5%)	34 (87.2%)	$\chi^2(1) = 0.01^{ns}$
Lipomeningocele	7 (6.2%)	4 (5.4%)	3 (7.7%)	
Other	7 (6.2%)	6 (8.1%)	1 (2.6%)	
Unknown/not reported	1 (0.9%)	0 (0%)	1 (2.6%)	
Lesion level				
Thoracic	21 (18.6%)	11 (14.9%)	10 (25.6%)	$\chi^2(1) = 2.16^{ns}$
Lumbar	54 (47.8%)	37 (50.0%)	17 (43.6%)	
Sacral	34 (30.1%)	24 (32.4%)	10 (25.6%)	
Unknown/not reported	4 (3.5%)	2 (2.7%)	2 (5.2%)	
Shunt present	88 (77.9%)	56 (75.7%)	32 (82.1%)	$\chi^2(1) = 0.60^{ns}$
IQ ^a	86.83 (0.12)	92.41 (19.87)	75.83 (15.78)	$t(105) = 4.35^{***}$
Family SES ^b	40.07 (16.35)	46.95 (13.52)	25.29 (11.43)	$t(105) = 8.09^{***}$

Note. ^a $n = 107$ for the total sample owing to missing data (non-Latino Caucasian $n = 71$; Latino $n = 36$). ^b $n = 107$ for the total sample owing to missing data (non-Latino Caucasian $n = 73$; Latino $n = 34$). IQ = WASI estimated full-scale IQ; SES = socioeconomic status measured by Hollingshead Four Factor Index. *** $p < .001$, ^{ns}not significant.

employment, and income. The Hollingshead Index of SES was computed to assess SES based on parents' education and occupation, with higher scores indicating higher SES (Hollingshead, 1975). Data regarding youth's type of SB (i.e., myelomeningocele, lipomeningocele, or other), lesion level (i.e., thoracic, lumbar, or sacral), and shunt status were primarily drawn from medical charts, but in cases where such data were missing, data were drawn from the Medical History Questionnaire (Holmbeck et al., 2003) completed by parents.

IQ

Youth were administered the Vocabulary and Matrix Reasoning subtests of the Wechsler Abbreviated Scale of Intelligence WASI; (Wechsler, 1999), to compute an estimated Full Scale IQ.

Psychosocial Functioning

Youth psychosocial functioning was assessed by examining youth, parent, and teacher reports of internalizing symptoms, externalizing symptoms, and social adjustment. According to Cavell (1990), social adjustment is the degree to which an individual is achieving developmentally appropriate goals, and may be measured by *perceived social competence*, *peer acceptance*, and *quality of friendships* (Devine, Holmbeck, et al., 2012); thus, these three social adjustment constructs were examined in the current study.

Internalizing and Externalizing Symptoms. Youth completed the Children's Depression Inventory (Kovacs, 1992), a 27-item self-rated measure of depressive symptoms in children ($\alpha = .79$ for non-Latino Caucasian youth; $\alpha = .80$ for Latino youth). Parents completed the Child Behavior Checklist (CBCL) and teachers completed the teacher version (Teacher Report Form; TRF; Achenbach & Rescorla, 2001). The CBCL and TRF contain 118 items that describe behavioral and emotional problems, rated on a 3-point scale. The current study used T-scores on the Internalizing and Externalizing Problems subscales.

Perceived Social Competence. Youth completed the Children's Self Efficacy for Peer Interaction Scale (Wheeler & Ladd, 1982), which assesses youth's perceived self-efficacy in social situations. The scale consists of 22 items describing a social situation, which is followed by an incomplete statement requiring the respondent to evaluate his/her ability to perform a verbal persuasive skill on a 4-point scale, with higher scores indicating greater self-efficacy ($\alpha = .82$ for non-Latino Caucasian youth; $\alpha = .84$ for Latino youth).

Parents completed the social competence subscale from the CBCL (see previous description of CBCL;

Achenbach & Rescorla, 2001), which contains nine items regarding (a) participation in organizations, clubs, teams, or groups, (b) number of close friends, (c) amount of time spent with friends outside of regular school hours, and (d) behavior with others and when alone. The current study used T-scores on the Social Competence subscale.

Peer Acceptance. Youth, parents, and teachers completed the Social Acceptance subscale from the appropriate reporter versions of Harter's (1985) Self-Perception Profile for Children Scale to assess youth acceptance by peers. The child version consists of six items, and the parent and teacher versions consist of three items, with higher scores (range of 1–4) indicating greater peer acceptance ($\alpha = .85$ for all items across all reporters for non-Latino Caucasian youth and $\alpha = .85$ for all items across all reporters for Latino youth).

Friendship Quality. Youth completed the Friendship Activity Questionnaire (FAQ) based on the Friendship Qualities Scale (Bukowski, Hoza, & Boivin, 1994). The FAQ consists of 46 items across five scales of friendship qualities: companionship, conflict, help, security, and closeness. The current study used a mean score of all 46 items ($\alpha = .94$ for non-Latino Caucasian youth; $\alpha = .91$ for Latino youth).

Family Functioning

Family functioning was assessed by examining parent report and coded observational data of family cohesion and conflict, and parent report of family stress.

Family Cohesion and Family Conflict. Parents completed the Family Environment Scale-Revised (FES-R; Moos & Moos, 1994), which assesses perceptions of social and environmental characteristics of the family. The FES-R is comprised of three domains, including a total of 10 subscales. The current study used the Cohesion and Conflict subscales from the Relationship domain. Rather than using a "True" or "False" format for each item, items were rated using a 4-point scale, with higher scores indicating greater cohesion/conflict (cohesion: $\alpha = .81$ for non-Latino Caucasian youth and $\alpha = .66$ for Latino youth across all items for both mother and father reports; conflict: $\alpha = .87$ for non-Latino Caucasian youth and $\alpha = .63$ for Latino youth across all items for both mother and father reports).

Families (mother, father, and youth) completed a set of video-recorded interaction tasks designed to generate family interaction and discussion. These structured tasks were counter-balanced and included the following: a warm-up game, a discussion of two age-appropriate vignettes of situations that youth might typically encounter (one specific to youth with

SB), a discussion of transferring disease-specific responsibilities from the parent to the child (e.g., independent catheterization), and a discussion of family conflicts that were identified through each family members' completion of an adapted version of the Parent-Adolescent Conflict Scale (Prinz, Foster, Kent, & O'Leary, 1979). Families were given 10 min to complete each of these tasks.

These video-recorded interactions, with the exception of the game task, were coded using the Family Interaction Macro-coding System (Kaugars et al., 2011). Coded items assess interaction style, conflict, affect, control, and problem-solving at the individual, dyadic (mother/father, mother/child, father/child), and systemic levels (family) using 5-point ratings. The Family Cohesion and Family Conflict subscales were examined in this study. The Family Cohesion subscale includes the following seven items: Requests Input (dyadic), Involvement (individual), Collaboration (systemic), Openness (systemic), Reaches Agreement (systemic), Parents Present as United Front (systemic), and Disengagement (systemic, reverse-coded); (scale reliability $\alpha = .89$ and interrater reliability $\alpha = .90$ for non-Latino Caucasian youth; scale reliability $\alpha = .91$ and interrater reliability $\alpha = .90$ for Latino youth). The Family Conflict subscale consists of the following three items: Conflict (dyadic), Disagreement (systemic), Attempts Resolution (individual; reverse-coded); (scale reliability $\alpha = .86$ and interrater reliability $\alpha = .93$ for non-Latino Caucasian youth; scale reliability $\alpha = .80$ and interrater reliability $\alpha = .83$ for Latino youth; Kaugars et al., 2011).

Family Stress. Parents completed the Family Stress Scale (FSS; Quittner, Glueckauf, & Jackson, 1990), which consists of 19 items to assess common stressors in families of a child with SB. Thirteen items are non-disease-specific (e.g., "mealtimes and bedtimes") and six items are disease-specific (e.g., "medical care/appointments"). The current study used the mean of all 19 items (α 's = .81, .92 for non-Latino Caucasian youth and α 's = .87, .95, for Latino youth for mother and father reports, respectively).

Statistical Analysis

Missing Data

The present study had missing data owing to item nonresponse as well as attrition. Across both time points, a nonsignificant Little's missing completely at random (MCAR) test (Little, 1988) revealed that data were MCAR (total sample: 10.13% missing, $\chi^2(268) = 304.51$, $p = .06$; non-Latino Caucasian subsample: 6.46% missing, $\chi^2(168) = 177.06$, $p = .30$; Latino subsample: 17.09% missing, $\chi^2(156) = 175.39$, $p = .14$). The most common reason for missing data was the lack of father participation; Latino

participants were less likely to have father participation, $\chi^2(1) = 4.71$, $p < .05$. Listwise deletion was used to handle missing data, as this is considered a valid approach when data are found to be MCAR (Schafer & Graham, 2002).¹ All analyses were conducted using Statistical Package for the Social Sciences Version 24.0.

Data Reduction

To reduce the number of analyses, and therefore reduce the chance of type I error, Pearson correlation coefficients (for two reporters/measures) or Cronbach's alpha coefficients (for three or more reporters/measures) were computed to assess associations among multiple reporters of each measure and to assess associations among multiple measures for each construct. Results indicated that the following variables were significantly correlated or demonstrated adequate internal consistency, so were averaged together at each time point (i.e., composites were not computed across time points): mother and father reports of externalizing symptoms on the CBCL at Time 1 ($r = .57$, $p < .001$) and Time 2 ($r = .69$, $p < .001$); mother and father reports of social competence on the CBCL at Time 1 ($r = .59$, $p < .001$) and Time 2 ($r = .62$, $p < .001$); mother, father, teacher, and youth reports of peer acceptance on the Harter at Time 1 ($\alpha = .61$) and Time 2 ($\alpha = .64$); mother and father reports of family cohesion on the FES at Time 1 ($r = .49$, $p < .001$); mother and father reports of family conflict on the FES at Time 1 ($r = .63$, $p < .001$); mother and father reports of family stress on the FSS at Time 1 ($r = .44$, $p < .001$).

Covariates

Because the current study included youth participants representing a large age range (i.e., ages 8–15 at Time 1, ages 10–17 at Time 2), all analyses controlled for age. In addition, consistent with a past study derived from the same longitudinal data set as the current study (see Devine, Holbein, et al., 2012), there was a significant difference ($p < .001$) for both IQ and SES between Latino and non-Latino Caucasian youth

1 When data are missing, it is generally recommended that analyses be conducted with and without the use of imputed data (Tabachnick & Fidell, 2013). Therefore, the current study ran analyses in two ways: (1) using listwise deletion and (2) using expectation-maximization (EM) methodology using maximum likelihood procedures. The majority of the results remained the same when using both approaches. Exceptions include that when using EM, two results were *no longer* statistically significant and three results *became* statistically significant. Because the percentage of missing data in the current data set was higher than what is generally recommended when using EM (Scheffer, 2002), and because results were similar between both approaches, listwise deletion was considered the most appropriate method.

(Table I). The difference in SES between groups is meaningful, as SES and ethnicity are intertwined (see Devine, Holbein, et al., 2012). In addition, IQ is also intertwined with ethnicity and SES in this population (Swartwout et al., 2010). Therefore, analyses were conducted in two ways: (1) with SES and age as covariates, and (2) with IQ and age as covariates.

Objective 1

Group differences (Latino vs. non-Latino Caucasian) at Time 1 were conducted via analyses of covariance and multivariate analyses of covariance with univariate post hoc analyses for each psychosocial functioning construct (internalizing symptoms, externalizing symptoms, social competence, peer acceptance, and friendship quality) and each family functioning construct (family cohesion, family conflict, family stress).

Objective 2

Longitudinal hierarchical regression analyses testing moderation effects were conducted to determine whether the effects of family functioning at Time 1 (family cohesion, family conflict, and family stress) on youth psychosocial functioning outcomes at Time 2 (internalizing symptoms, externalizing symptoms, perceived social competence, peer acceptance, and friendship quality) varied significantly as a function of whether youth are Latino or non-Latino Caucasian after controlling for the outcomes at Time 1. Such analyses were based on methods outlined by Aiken and West (1991), and Holmbeck (2002). A separate regression analysis was conducted for each family functioning variable predicting each psychosocial functioning outcome. Variables were entered simultaneously in the following steps (with the Time 2 psychosocial functioning variable as the dependent variable): (1) Time 1 psychosocial functioning outcome to create a residual change-dependent variable, (2) Time 1 covariates, (3) Time 1 family functioning predictor, (4) Time 1 family functioning predictor \times ethnic group interaction.

Statistical Power

For Objective 1, assuming a power of .80, and an alpha of .05, a sample of 26 is required to detect large effect sizes ($\eta^2 = .40$) and a sample size of 64 is required to detect medium effect sizes ($\eta^2 = .25$) for analyses with two groups (Cohen, 1992). For Objective 2, assuming a power of .80, and an alpha of .05, a sample of 42 is required to detect large effect sizes ($R^2 = .35$) and a sample size of 91 is required to detect medium effect sizes ($R^2 = .15$) for analyses with five predictors (Cohen, 1992). Thus, the current study had enough power to detect medium and large effect sizes.

Results

Preliminary Analyses

All variables were examined for skewness and corrected according to methods recommended by Tabachnick and Fidell (2013). Parent-reported family stress at Time 1 was positively skewed (skewness value = 1.139), so it was transformed using square root transformation. Youth-reported internalizing symptoms at Time 1 was also positively skewed (skewness value = 1.269), so it was transformed at both time points using log transformation. Transformed variables were used in analyses. The descriptive data presented in Table II refers to pretransformed data.

Objective 1

The first objective of this study was to examine differences in psychosocial and family functioning between Latino and non-Latino Caucasian youth with SB at Time 1. Results are displayed in Table II. For psychosocial functioning, results revealed no significant group differences in internalizing symptoms, peer acceptance, or friendship quality. However, when controlling for IQ, there was a significant group difference in social competence. Follow-up univariate analyses revealed that compared with non-Latino Caucasian youth, Latino youth demonstrated less parent-reported social competence. In addition, while *multivariate* analyses did not reveal a significant difference in externalizing symptoms, *univariate* analyses revealed that, when controlling for either IQ or SES, Latino youth demonstrated less teacher-reported externalizing symptoms compared with non-Latino Caucasian youth.

Regarding family functioning, there were no significant group differences in family cohesion or family stress. However, results revealed that when controlling for SES, there was a significant group difference in observed family conflict. Follow-up univariate analyses revealed that, compared with non-Latino Caucasian families, Latino families were observed to demonstrate less family conflict.

Objective 2

The second objective of this study was to examine family functioning as a predictor of subsequent changes in psychosocial functioning at Time 2 after controlling for psychosocial functioning at Time 1, and whether the relationship was moderated by ethnicity. Results of significant main effects across both Latino and non-Latino Caucasian youth are displayed in Table III. Greater observed family cohesion predicted decreases in teacher-reported internalizing symptoms when controlling for SES, and it predicted increases in parent-reported social competence when controlling for both SES alone and IQ alone. In addition, greater parent-reported family cohesion

Table II. Group Means and Standard Deviations for Study Variables With MANCOVA and ANCOVA Follow-Up Findings at Time 1

Variable	Non-Latino Caucasian M (SD)	Latino M (SD)	IQ Controlled Multi/Uni	SES Controlled Multi/Uni
Internalizing symptoms			$F(4, 59) = 0.63^{ns}$; ES = .04	$F(4, 59) = 0.60^{ns}$; ES = .04
CBCL (M)	55.44 (9.11)	57.26 (11.50)	<i>ns</i>	<i>ns</i>
CBCL (F)	52.56 (10.16)	54.45 (11.82)	<i>ns</i>	<i>ns</i>
CBCL (T)	54.70 (11.46)	58.78 (6.55)	<i>ns</i>	<i>ns</i>
CDI (Y) ^a	1.27 (0.20)	1.35 (0.23)	<i>ns</i>	<i>ns</i>
Externalizing symptoms			$F(2, 82) = 2.90^{ns}$; ES = .07	$F(2, 85) = 2.04^{ns}$; ES = .05
CBCL (M/F)	49.22 (9.07)	48.33 (9.92)	$F(1, 90) = 0.47^{ns}$; ES = .01	$F(1, 94) = 0.49^{ns}$; ES = .01
CBCL (T)	51.77 (8.25)	49.74 (6.86)	$F(1, 83) = 5.83^*$; ES = .07	$F(1, 86) = 3.83^*$; ES = .04
Social competence			$F(2, 87) = 4.61^*$; ES = .10	$F(2, 88) = 2.41^{ns}$; ES = .05
CBCL (M/F)	45.78 (8.28)	37.53 (8.00)	$F(1, 92) = 7.41^{**}$; ES = .08	$F(1, 95) = 4.17^*$; ES = .04
CSPI (Y)	2.76 (0.45)	2.77 (0.50)	$F(1, 94) = 1.18^{ns}$; ES = .01	$F(1, 93) = 0.16^{ns}$; ES = .00
Peer acceptance			N/A	N/A
Harter (M/F/T/Y)	2.85 (0.32)	2.79 (0.33)	$F(1, 102) = 0.43^{ns}$; ES = .00	$F(1, 102) = 0.01^{ns}$; ES = .00
Friendship quality			N/A	N/A
FAQ (Y)	3.71 (0.65)	3.73 (0.52)	$F(1, 96) = 0.00^{ns}$; ES = .00	$F(1, 94) = 0.03^{ns}$; ES = .00
Family cohesion			$F(2, 92) = 0.10^{ns}$; ES = .00	$F(2, 93) = 0.75^{ns}$; ES = .02
FIMS	3.46 (0.36)	3.30 (0.42)	<i>ns</i>	<i>ns</i>
FES (M/F)	3.09 (0.33)	3.11 (0.31)	<i>ns</i>	<i>ns</i>
Family conflict			$F(2, 92) = 1.70^{ns}$; ES = .04	$F(2, 93) = 8.39^{***}$; ES = .15
FIMS	1.97 (0.43)	1.84 (0.35)	<i>ns</i>	$F(1, 101) = 16.35^{***}$; ES = .14
FES (M/F)	2.10 (0.37)	1.99 (0.31)	<i>ns</i>	$F(1, 96) = 1.38^{ns}$; ES = .01
Family Stress			N/A	N/A
FSS (M/F) ^a	2.01 (0.50)	1.95 (0.57)	$F(1, 93) = 0.36^{ns}$; ES = .00	$F(1, 96) = 3.58^{ns}$; ES = .04

Note. ^aThis variable was transformed to correct for skewness; means and standard deviations refer to pretransformed data. CBCL = Child Behavior Checklist; CDI = Children's Depression Inventory; CSPI = Children's Self-Efficacy for Peer Interaction Scale; Harter = Harter Social Acceptance Scale; FAQ = Friendship Activity Questionnaire; FIMS = Family Interaction Macro Coding Scale (observational data); FES = Family Environment Scale; FSS = Family Stress Scale; M = mother report; F = father report; T = teacher report; Y = youth report; IQ = WASI estimated full-scale IQ; SES = socioeconomic status measured by Hollingshead Four Factor Index; Multi = multivariate (MANCOVA); Uni = univariate (ANCOVA); ES = partial eta squared, reported as effect size estimates. All analyses controlled for age. Significant results are in bold print. * $p < .05$, ** $p < .01$, *** $p < .001$, *ns* not significant.

predicted increases in friendship quality when controlling for IQ. Contrary to hypotheses, greater parent-reported family cohesion predicted increases in teacher-reported externalizing behavior when controlling for both SES alone and IQ alone. There were no significant main effects of observed or parent-reported family conflict or family stress on the psychosocial functioning outcomes.

Results revealed five significant interactions. There was a significant interaction between observed family conflict and ethnicity when predicting friendship quality, when controlling for both SES alone and IQ alone (when controlling for SES: $b = -0.88$, $SE = 0.40$, $\beta = -.25$, $t = -2.18$, $p < .05$, $\Delta R^2 = .05$; when controlling for IQ: $b = -0.93$, $SE = 0.40$, $\beta = -.27$, $t = -2.32$, $p < .05$, $\Delta R^2 = .05$). Post hoc simple slope regression analyses revealed that greater observed family conflict predicted decreases in friendship quality for Latino youth (when controlling for SES: $b = -0.93$, $SE = 0.37$, $\beta = -.69$, $t = -2.50$, $p < .05$; when controlling for IQ: $b = -0.93$, $SE = 0.38$, $\beta = -.69$, $t = -2.49$, $p < .05$), but the effect was not significant for non-Latino Caucasian youth (when controlling for SES: $b = -0.05$, $SE = 0.16$, $\beta = -.04$,

$t = -0.31$, $p = .76$; when controlling for IQ: $b = 0.00$, $SE = 0.15$, $\beta = .00$, $t = 0.00$, $p = .99$; see Figure 2).

There was a significant interaction between observed family cohesion and ethnicity when predicting peer acceptance and when controlling for SES ($b = -0.33$, $SE = 0.15$, $\beta = -.24$, $t = -2.16$, $p < .05$, $\Delta R^2 = .04$). Post hoc simple slope regression analyses revealed that greater observed family cohesion predicted increases in peer acceptance for non-Latino Caucasian youth ($b = 0.25$, $SE = 0.10$, $\beta = .31$, $t = 2.61$, $p < .05$), but the effect was not significant for Latino youth ($b = -0.08$, $SE = 0.12$, $\beta = -.10$, $t = -0.63$, $p = .53$; see Figure 3). In addition, there was a significant interaction between parent-reported family stress and ethnicity when predicting teacher-reported internalizing symptoms, when controlling for SES ($b = -25.31$, $SE = 13.01$, $\beta = -.26$, $t = -1.95$, $p < .05$, $\Delta R^2 = .04$). Post hoc simple slope regression analyses revealed that greater parent-reported family stress predicted increases in teacher-reported internalizing symptoms for non-Latino Caucasian youth ($b = 16.50$, $SE = 7.37$, $\beta = .29$, $t = 2.24$, $p < .05$), but the effect was not significant for Latino youth ($b = -8.81$, $SE = 10.78$, $\beta = -.16$, $t = -.82$, $p = .42$). Further, there was a

Table III. Main Effects of Family Cohesion at Time 1 Predicting Youth Psychosocial Functioning at Time 2

Family cohesion	Covariate	Internalizing symptoms			Externalizing symptoms			Social competence			Friendship quality		
		CBCL (T)			CBCL (T)			CBCL (M/F)			FAQ (Y)		
		β	<i>t</i>	ΔR^2	β	<i>t</i>	ΔR^2	β	<i>t</i>	ΔR^2	β	<i>t</i>	ΔR^2
FIMS	SES	-.33**	-3.03	.10	-.10 ^{ns}	-0.88	.01	.32**	3.50	.08	.17 ^{ns}	1.60	.03
	IQ	-.19 ^{ns}	-1.66	.03	-.03 ^{ns}	-0.24	.00	.32**	3.45	.09	.16 ^{ns}	1.56	.02
FES (M/F)	SES	-.08 ^{ns}	-0.76	.01	.22*	2.17	.05	-.06 ^{ns}	-0.61	.00	.17 ^{ns}	1.69	.03
	IQ	-.08 ^{ns}	-0.79	.01	.24*	2.46	.06	-.07 ^{ns}	-0.76	.01	.23*	2.20	.05

Note. FIMS = Family Interaction Macro Coding Scale (observational data); FES = Family Environment Scale; CBCL = Child Behavior Checklist; FAQ = Friendship Activity Questionnaire; M = mother report; F = father report; T = teacher report; Y = youth report; IQ = WASI estimated full-scale IQ; SES = socioeconomic status measured by Hollingshead Four Factor Index; ΔR^2 = R squared change, reported as effect size estimates. All analyses controlled for age and psychosocial functioning at Time 1. Predictors and outcomes that did not yield significant results are not included in the table. Significant results are in bold print. * $p < .05$, ** $p < .01$, ^{ns}not significant.

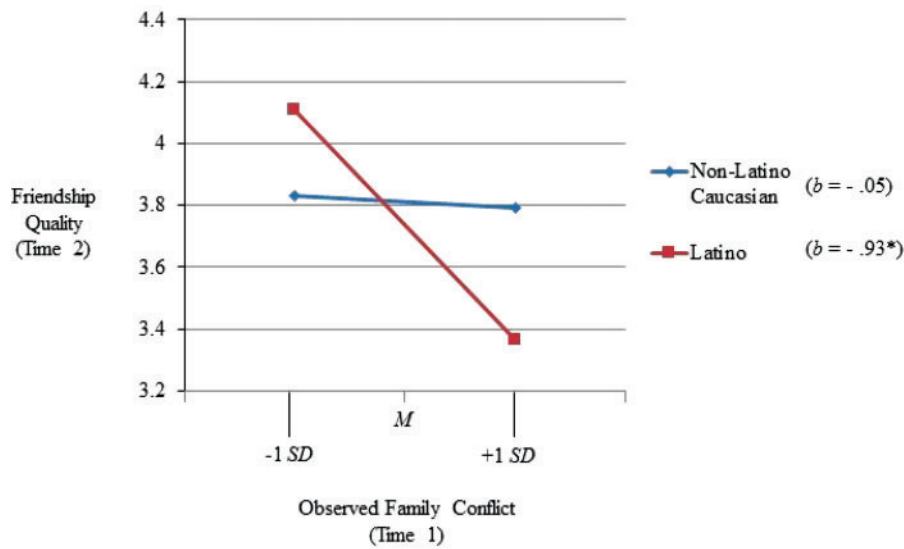


Figure 2. Post hoc probe of significant interaction between observed family conflict and ethnicity predicting friendship quality. Analysis controlled for SES, age, and friendship quality at Time 1. * $p < .05$.

significant interaction between parent-reported family conflict and ethnicity when predicting youth-reported internalizing symptoms with SES controlled ($b = 0.11$, $SE = 0.05$, $\beta = .29$, $t = 2.11$, $p < .05$, $\Delta R^2 = .06$). In the only interaction that was contrary to hypotheses, post hoc simple slope regression analyses revealed that greater parent-reported family conflict predicted decreases in child-reported internalizing symptoms for non-Latino Caucasian youth ($b = -0.05$, $SE = 0.02$, $\beta = -.26$, $t = -2.07$, $p < .05$), but the effect was not significant for Latino youth ($b = 0.06$, $SE = 0.05$, $\beta = .38$, $t = 1.36$, $p = .18$).

Lastly, there was a significant interaction between parent-reported family stress and ethnicity when predicting parent-reported social competence when controlling for SES ($b = 18.55$, $SE = 9.31$, $\beta = .23$, $t = 1.99$, $p < .05$, $\Delta R^2 = .03$). Post hoc simple slope regression analyses revealed no significant simple main effects for either Latino youth ($b = 14.20$, $SE = 7.87$, $\beta = .30$, $t = 1.80$, $p = .08$) or non-Latino Caucasian

youth ($b = -4.34$, $SE = 5.33$, $\beta = -.09$, $t = -.82$, $p = .42$).

Discussion

The purpose of this study was to expand the limited research on Latino youth with SB by examining differences in psychosocial and family functioning between Latino and non-Latino Caucasian youth with SB, and to examine family functioning as a predictor of psychosocial functioning as moderated by ethnicity. Findings revealed that, compared with non-Latino Caucasian youth with SB, Latino youth with SB exhibited significantly less externalizing symptoms and family conflict, but also less social competence. Also, ethnicity moderated the relationship between family functioning and psychosocial functioning in several ways. For Latino youth only, greater observed family conflict predicted decreases in friendship quality. For non-Latino Caucasian youth

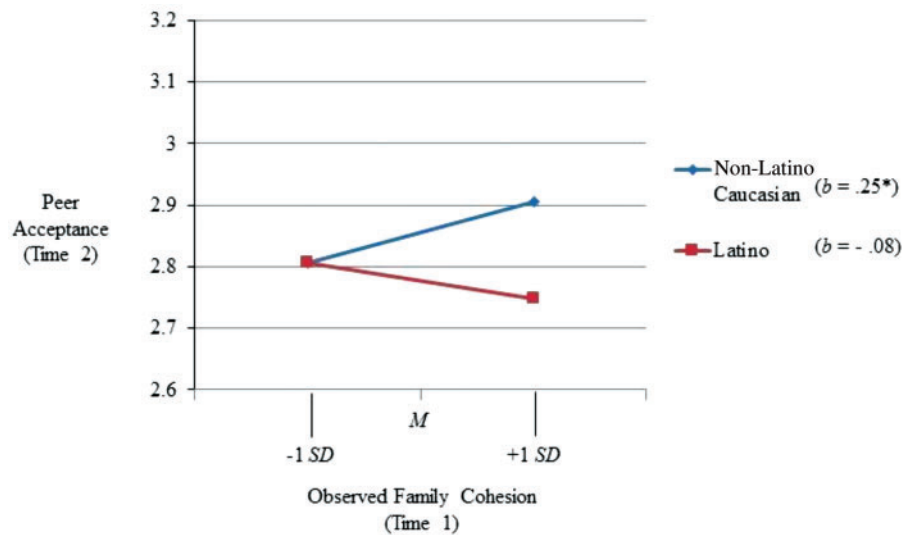


Figure 3. Post hoc probe of significant interaction between observed family cohesion and ethnicity predicting peer acceptance. Analysis controlled for SES, age, and peer acceptance at Time 1. * $p < .05$.

only, greater observed family cohesion predicted increases in peer acceptance, greater parent-reported family stress predicted increases in teacher-reported internalizing symptoms, and greater parent-reported family conflict predicted decreases in child-reported internalizing symptoms. Overall, while many findings emerged regardless of whether SES or IQ was controlled, some results varied depending on which covariate was included. Further, results were sometimes found for one reporter or methodology, but not the other (e.g., teacher report versus parent report, or questionnaire data versus observational data). Importantly, although significant differences between Latino and non-Latino Caucasian youth with SB were revealed, results of the current study indicated that there were also many domains in which these groups did not differ significantly. In other words, results suggest that a resilience-disruption view of family functioning that has been supported in the literature for all youth with SB (Lennon, Murray et al., 2015) can be applied specifically to Latino youth with SB as well.

Psychosocial and Family Functioning

Although Latino and non-Latino Caucasian youth demonstrated similar levels of internalizing symptoms, peer acceptance, and friendship quality, there were differences between the groups on teacher-reported externalizing symptoms and parent-reported social competence. Latino youth demonstrated less teacher-reported externalizing symptoms compared with non-Latino Caucasian youth. This is in contrast to past research on typically developing populations that has found Latino youth to be at a significantly greater risk for problem behaviors (e.g., fighting) compared with non-Latino Caucasian youth (CDC, 2006). It may be that the differences in externalizing behaviors seen in

typically developing youth are not as prominent in the SB population owing to possible cognitive or medical limitations. For example, research has found that youth with SB engage in health risk behaviors to a lesser degree than their typically developing peers (Murray et al., 2014).

Regarding social competence, Latino youth demonstrated less parent-reported social competence when controlling for IQ, but not when controlling for SES. This indicates that the difference between groups is likely driven by the difference in SES, and maybe not so much by ethnicity per se. The measure of social competence used in this study, the CBCL Social Competence subscale, includes items regarding participation in organizations, amount of time spent with friends outside of school hours, number of close friends, and behavior with others (Achenbach & Rescorla, 2001). Participation in organizations can be limited owing to lower SES because of the possible costs associated with involvement in youth organizations (Gardner, Roth, & Brooks-Gunn, 2009). Also, time spent with friends outside of school may be limited, as lower SES parents may have less flexibility with their time to help arrange such activities (American Psychological Association, 2014).

There were no differences in family cohesion or stress between Latino youth and non-Caucasian Latino youth. It was expected that Latino families would demonstrate greater family cohesion given previous research that has identified familism as a more salient cultural value for Latino families as compared with non-Latinos (Cauce & Domenech-Rodriguez, 2002). However, the current study included measurement of family cohesion (the *emotional bond* within one's family), *not* a direct measure of familism (the *valuing* of one's family), and previous studies have

found these to be distinct constructs (Marsiglia et al., 2009). Therefore, the current study did not reveal there to be differences in the *emotional bond* within Latino and non-Latino Caucasian families of youth with SB as reported by parents or as observed by independent raters. Future research examining familism, or the *valuing* of one's family, may reveal such differences.

In addition, it was expected that Latino families would demonstrate greater family stress given that they are more likely to experience stress related to poverty and discrimination (Romero & Roberts, 2003). Perhaps the additional stress found in Latino families may impact parents, but not family units. Or, it may be that the amount of family stress is similar in both Latino and non-Latino Caucasian families because both groups are experiencing stress that results from having a child with a chronic health condition (Cousino & Hazen, 2013). Lastly, the lack of significant differences may be owing to "floor effects," in that it may be difficult to statistically detect differences between groups when both Latino and non-Latino Caucasian families report relatively low levels of family stress (see *M's* in Table II).

Consistent with the hypothesis, Latino families were observed to demonstrate less family conflict during interaction tasks. This result may truly reflect an ethnic/cultural difference between the groups, in that research on typically developing Latino families has found that family conflict is reduced by the high levels of family support and closeness typically found in Latino families (Lorenzo-Blanco et al., 2012). Interestingly, the difference in family conflict was only found for observational data of family interaction tasks, and not for parent-reported data. It may be that non-Latino Caucasian parents are under-reporting the amount of conflict that may be present within their families. Or, it is possible that Latino families were less likely to engage in family conflict while being observed within a research context. Few studies on Latino families have included observational data of family interaction tasks (Domenech Rodriguez, Donovan, & Crowley, 2009). Thus, more research is needed to determine whether a cultural difference in "reactivity to observation" exists.

The Relation Between Family Functioning and Psychosocial Functioning

The current study found that, for all youth with SB, greater observed family cohesion predicted decreases in teacher-reported internalizing symptoms and increases in parent-reported social competence. Similarly, greater parent-reported family cohesion predicted increases in friendship quality. These results highlight the positive impact that family cohesion has on psychosocial functioning in youth with SB.

However, contrary to the hypothesis, greater parent-reported family cohesion also predicted increases in greater teacher-reported externalizing symptoms. Although youth with SB have been observed during family interaction tasks to display more passive, dependent behavior (Holmbeck et al., 2002), it may be that greater family cohesion fosters a more active and less passive youth interaction style, which, in turn, is observed by teachers in the classroom as externalizing behavior.

When examining whether ethnicity moderates the relationship between family functioning and psychosocial functioning, several significant interactions emerged. For Latino youth, greater observed family conflict predicted decreases in friendship quality. This finding may be explained by the "spill over" effect found in previous research on typically developing youth, which has documented that family conflict can lead to increased conflict within peer relationships (Chung & Fuligni, 2011). Also, given the cultural emphasis on compliance and family harmony in Latino families, family conflict may be more disruptive for Latino youth, and hinder their ability to engage in their friendships (Chung, Flook, & Fuligni, 2009).

Results also revealed that, for non-Latino Caucasian youth, greater observed family cohesion predicted increases in peer acceptance, and greater parent-reported family stress predicted increases in teacher-reported internalizing symptoms. Both of these findings are in the expected direction; however, it was expected that these relationships would be stronger for Latino youth. Interestingly, these findings were found only when controlling for SES, and not when controlling for IQ. This indicates that youth IQ has an impact on the relationship between domains of family functioning and psychosocial functioning, specifically for non-Latino Caucasian youth with SB. Previous research has found a robust relationship between verbal IQ and family cohesion in a predominantly Caucasian sample of youth with SB (Holmbeck et al., 2002), and suggested that the quality of communication in families of youth with lower IQs may be reduced, thus impacting domains such as family cohesion.

Limitations and Directions for Future Research

The current study is consistent with calls from the fields of pediatrics and pediatric psychology for more empirical investigations into topics of diversity among pediatric populations, including SB, as such research is needed to address disparities in health and develop evidence-based, culturally sensitive interventions (AAP, 2010; Holmbeck & Devine, 2010; Lescano, Koinis-Mitchell, & McQuaid, 2016). Although this study also had numerous other strengths (e.g., the longitudinal nature of the study, the multisource and multimethod data measuring a wide range of domains, the oversampling of Latino youth), there were several

limitations of the current study that should be addressed in future work. First, the Latino sample size was relatively small. Future research should increase efforts for Latino family recruitment by using active recruitment strategies (e.g., in-person contact) with bilingual research staff for both initial and follow-up recruitment efforts (Kao et al., 2011). Retention of Latino families can be improved by following up with families in between data collection waves to maintain rapport and obtain accurate contact information, and to assess and address potential barriers to their future participation.

Second, the current study highlighted the relevance of the familism construct to Latino families, but did not include a direct measure of familism. Future studies that focus on Latino families of youth with SB should include such culturally relevant measures. Related, the internal consistency of the parent-reported measure of family cohesion and conflict (FES-R; Moos & Moos, 1994) was relatively lower for Latino youth compared with non-Latino Caucasian youth. Parents of 28 of the 39 (71.8%) participating Latino youth completed questionnaire measures in Spanish. Like all other measures included in this study, the FES-R (Moos & Moos, 1994) was adapted for Spanish speakers by a translation team using forward and back translation methods, and all other parent-reported questionnaire measures completed in Spanish were found to have acceptable internal consistency. Still, efforts should be made in future research to include measures that have been documented as being culturally sensitive and reliable among Latinos and Spanish speakers.

Lastly, although analyses in the current study implicitly assume homogeneity within the Latino group, it is recognized that wide differences exist among individuals within this group in terms of country of origin and cultural practices. More than half of the Latino group was Mexican-American, consistent with population trends, so results may be more representative of that group. To capture the range of experiences of Latino youth with SB, future research should include within-group designs that examine immigrant status, country of origin, acculturation, and other culturally relevant variables, as these factors have been found to differentially impact outcomes among typically developing Latino youth (Lorenzo-Blanco et al., 2012).

Clinical Implications

The current study has important implications for culturally sensitive clinical work with youth with SB. It appears that, despite the greater number of challenges and stressors that are believed to be more prevalent for Latino youth (Potochnick & Perreira 2010), Latino youth with SB tend to fare similarly to their non-Latino Caucasian counterparts. In fact, results

from the current study suggest that there may be ways in which Latino youth with SB have better outcomes compared with non-Latino Caucasians, such as experiencing fewer externalizing symptoms. It would be beneficial for clinicians working with Latino youth to assess for and identify these areas of strength, and to build on them to promote better adjustment. Further, although Latino families of youth with SB tend to demonstrate less family conflict compared with non-Latino Caucasian families, family conflict in Latino families is associated with decreased friendship quality, which suggests that it is important to assess and address family conflict when working with these families. Overall, families of Latino youth with SB will be better served by culturally competent clinicians who seek to build on areas of resilience.

Supplementary Data

Supplementary data can be found at: <http://www.jpepsy.oxfordjournals.org/>.

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